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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,187	03/28/2001	Akitsugu Ohyoshi	FUJA 18.539	2892

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EXAMINER

LESNIEWSKI, VICTOR D

ART UNIT PAPER NUMBER

2155

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,187

Applicant(s)

OHYOSHI ET AL.

Examiner

Victor Lesniewski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. The amendment filed 2/1/2005 has been placed of record in the file.
2. Claims 1 and 4 have been amended.
3. Claims 1-25 are now pending.
4. The applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the following new grounds of rejection.

Response to Amendment

5. Claims have been amended to show a two-way conversion between frame relay signals and ATM cell signals. The amendment proves a change in scope to the independent claims as the independent claims now explicitly state a frame/cell compatible type exchange capable of both outputting input frame relay signals as ATM cell signals and outputting input ATM cell signals as frame relay signals, reversibly. However, none of the amended claims show a patentable distinction over the prior art as evidenced by the following new grounds of rejection.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihara (U.S. Patent Number 5,764,637) in view of Lee (U.S. Patent Number 6,529,510).

8. Nishihara disclosed a system which converts STM frame data to ATM cells. In an analogous art, Lee disclosed an ATM switching apparatus that mutually operates a TDM network and an ATM network. Both systems convert time-division multiplexed data in the form of structured time slots into ATM cells.

9. Concerning claims 1 and 4, Nishihara did not explicitly state a frame/cell compatible type exchange capable of both outputting input frame relay signals as ATM cell signals and outputting input ATM cell signals as frame relay signals, reversibly. However, Lee's system is focused on this two-way conversion as recited in claims 1 and 4. It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the system of Nishihara by adding the ability to both output input frame relay signals as ATM cell signals and output input ATM cell signals as frame relay signals, reversibly, as provided by Lee. Here the combination satisfies the need for a TDM network and an ATM network working side by side. See Lee, column 1, lines 24-29.

10. Since many of the limitations not amended will be rejected for reasons previously cited (reasons concerning obviousness over Nishihara), appropriate explanations or clarifications to the line citations have been held over from the previous action.

11. Thereby, the combination of Nishihara and Lee discloses:

- <Claim 1>

A method for switching communication modes for shifting an exchange from a frame relay exchange to an ATM exchange in a communication system having a plurality of exchanges each accommodating a plurality of terminals and including a frame relay exchange and having a network for connecting the plurality of exchanges to each other in

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order to transfer data among said plurality of terminals, comprising a first step of selecting any one exchange among said plurality of exchanges (Nishihara, column 2, lines 46-49), a second step of operating said selected exchange as a frame/cell compatible type exchange (Nishihara, column 2, lines 53-57) capable of operating for both outputting input frame relay signals as ATM cell signals and outputting input ATM cell signals as frame relay signals, reversibly (Lee, column 1, lines 41-51), and a third step of executing said first step and second step for an exchange which has not yet been selected and repeating said third step to autonomously shift all said exchanges to said ATM exchanges (Nishihara, column 2, lines 46-49, namely "each time slot position").

Concerning the citations to Nishihara, although he does not specifically delineate the exact steps as described above, he still discloses the limitations of the steps as cited. For example, Nishihara does not speak specifically of shifting each individual frame through the conversion. Instead he speaks of the complete conversion that occurs by way of "each time slot position." Since Nishihara has disclosed the same limitations only stated a different way, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to delineate the conversion steps in terms of each singular exchange.

- <Claim 2>

A method for switching communication modes as set forth in claim 1, wherein, in said second step, whether an opposing exchange or an opposing terminal of an other party of communication operates for frames or operates for cells is registered on said selected exchange side in advance as office data, and the selected exchange is operated as an

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exchange operating for frames or an exchange operating for cells according to the office data.

Concerning claims 2 and 3, Nishihara disclosed a virtual path identifier discrimination unit which identifies the incoming frame exchanges and passes them to a cell buffer queue to be processed accordingly. This can be considered an automatic determination by the system. However, a predetermined discrimination was also well known in the art at the time of the applicant's invention. Furthermore, Nishihara points to the use of predetermined exchange information by saying how conventional conversion systems utilize a predetermined restriction on the incoming signal and a predetermined transfer order in the cell buffer. See column 1, lines 42-50. In terms of claim 2, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention that a previously registered determination could have been made as opposed to the automatic one.

- <Claim 3>

A method for switching communication modes as set forth in claim 1, wherein, in said second step, whether an opposing exchange or an opposing terminal of another party of communication operates for frames or operates for cells is automatically identified in said selected exchange (Nishihara, column 2, lines 46-49), and the selected exchange is operated as an exchange operating for frames or an exchange operating for cells according to the result of the identification (Nishihara, column 2, lines 53-57).

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- <Claim 4>

An exchange used in a communication system having a plurality of exchanges each accommodating a plurality of terminals and including a frame relay exchange and having a network for connecting the plurality of exchanges to each other in order to transfer data among said plurality of terminals, said exchange comprising: an ATM side bus and a frame relay side bus provided in parallel (Lee, figure 11), a frame/cell compatibility function unit inserted in said ATM side bus (Nishihara, figure 3, item 102), said frame/cell compatibility function unit being capable of both outputting input frame relay signals as ATM cell signals and outputting input ATM cell signals as frame relay signals, reversibly, (Lee, column 1, lines 41-51), and a frame/cell switch unit for alternatively switching between said ATM side bus and frame relay side bus (Nishihara, figure 3, item 101).

Concerning the citations to Nishihara, although he does not specifically describe the exact conversion units as the above claim, he still discloses the limitations as cited and the above named items accomplish the same functionality as those units of the claim. For example, a separate compatibility function unit and a separate switch unit are represented in the stated items of figure 3 which accomplish a check for compatibility and a switching between the frame and ATM sides respectively. Since Nishihara has disclosed the same limitations only stated a different way, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to utilize separate functional units in order to accomplish the same functionality.

- <Claim 5>

An exchange as set forth in claim 4, wherein said frame/cell compatibility function unit is comprised of an ATM switch and a frame/cell format converting unit connected to the ATM switch (Nishihara, column 4, lines 39-47).

- <Claim 6>

An exchange as set forth in claim 5, wherein said frame/cell format converting unit is a frame forwarding CLAD circuit (Nishihara, column 4, lines 47-51).

- <Claim 7>

An exchange as set forth in claim 4, wherein said frame/cell switch unit switches alternatively between said ATM side bus and frame side bus in accordance with an instruction from the outside (Nishihara, column 3, lines 28-37).

- <Claim 8>

An exchange as set forth in claim 7, wherein said instruction is given according to office data registered in advance.

See claim 2 for a description of the previously registered determination.

- <Claim 9>

An exchange as set forth in claim 7, further provided with: a frame/cell detection unit for detecting whether a signal input from the outside is comprised of frames or cells (column 2, lines 46-49), said instruction being created in accordance with the result of detection by this frame/cell detection unit (Nishihara, column 2, lines 53-57).

- <Claim 10>

An exchange as set forth in claim 9, further provided with: a pair of said frame/cell switch units formed at the two end portions of said ATM side bus and frame side bus provided in parallel (Nishihara, column 3, lines 15-20 and Lee, figure 11) and a switch control unit for receiving as input the result of detection by said frame/cell detection unit and controlling said pair of interlocked frame/cell switch units (Nishihara, figure 4, item 206).

To clarify, although Nishihara does not describe specifically a pair of switch units, the above cited queues allow the system to accomplish the same type of switching tasks.

- <Claim 11>

An exchange as set forth in claim 9, wherein said frame/cell detection unit is comprised of a cell synchronization circuit (Nishihara, column 4, lines 58-65).

- <Claim 12>

An exchange as set forth in claim 9, wherein said frame/cell detection unit has an identifying means for monitoring for cell synchronization during a first time t1 and automatically identifying that an opposing exchange or an opposing terminal of another party of communication operates for frames when detecting that cell synchronization cannot be established during the time t1 (Nishihara, figure 3, item 102).

- <Claim 13>

An exchange as set forth in claim 9, wherein said frame/cell detection unit has an identifying means for monitoring for cell synchronization during a first certain time t1 and automatically identifying that an opposing exchange or an opposing terminal of

another party of communication operates for cells when detecting that cell synchronization can be continuously established during the time t1 (Nishihara, figure 3, item 102).

- <Claim 14>

An exchange as set forth in claim 9, wherein, when said frame/cell detection unit detects that a signal input from the outside is comprised of frames, said frame/cell switch unit switches to said frame side bus and passes the frames through the frame side bus while maintaining the signal format.

Nishihara disclosed a virtual path identifier discrimination unit which identifies the incoming frame exchanges and processes them accordingly. He does not specifically mention that the same signal format may be maintained. However, maintaining the signal format in a situation such as this was well known in the art at the time of the applicant's invention. In a converting system of this type, if a conversion is not to be made the system must either drop the signal or maintain it in its original format. Thus, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention that the signal format could be maintained after the detection step.

- <Claim 15>

An exchange as set forth in claim 9, wherein, when said frame/cell detection unit detects that a signal input from the outside is comprised of cells, said frame/cell switch unit switches to said ATM side bus, inputs the cells to said frame/cell compatibility function unit, processes the cells and converts them to the frame signal format, then passes the same through the ATM side bus (Nishihara, column 4, lines 52-57).

- <Claim 16>

An exchange as set forth in claim 14: wherein said frame/cell detection unit has an identifying means for subsequently monitoring for cell synchronization during a second certain time t_2 while passing said frames through said frame side bus while maintaining the signal format and automatically identifying that an opposing exchange or opposing terminal of another party of communication has changed to one operating for cells when detecting that cell synchronization could be established during the time t_2 , and said frame/cell switch unit switches the bus to said ATM side bus, inputs the cells to said frame/cell compatibility function unit, processes the cells and converts them to the frame signal format, and then passes the same through the ATM side bus.

Concerning claims 16 and 17, Nishihara disclosed a system which monitors cell synchronization and operates on frames/cells determined ready for conversion. See column 4, lines 39-65. He does not specifically mention the distinctions of separate times t_2 , t_3 , etc. However, these specific time intervals are not patentably distinct from the fact that the cell synchronization is monitored throughout as it is clear that the monitoring can take place at any such chosen time. Thus, it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to include monitoring for cell synchronization at specific times throughout the process.

- <Claim 17>

An exchange as set forth in claim 15, wherein said frame/cell detection unit has an identifying means for subsequently monitoring for cell synchronization during a third certain time t_3 while passing said cells through said ATM side bus and automatically

identifying that an opposing exchange or opposing terminal of another party of communication has changed to one operating for frames when detecting that cell synchronization cannot be established during the time t_3 , and said frame/cell switch unit switches the bus to said frame side bus and passes the frames through the frame side bus while maintaining the signal format.

See discussion under claim 16 for the monitoring at a certain time and the discussion under claim 14 for maintaining signal format.

- <Claim 18>

An exchange as set forth in claim 12 or 13, wherein when communicating with said opposing exchange or opposing terminal via high speed digital dedicated lines, said monitoring is carried out in units of B channels \times N (N is 1, 2, 3, ...) (Nishihara, column 5, lines 24-30).

- <Claim 19>

An exchange as set forth in claim 12 or 13, wherein when communicating with said opposing exchange or opposing terminal via an ISDN backup channel at the time of a line fault, said monitoring is carried out with respect to the related communication in units of B channels \times N (N is 1, 2, 3, ...) during the period from completion of the connection to the ISDN backup channel to restoration of the channel due to the end of the line fault (Nishihara, column 1, lines 24-32 and column 5, lines 24-30).

- <Claim 20>

An exchange as set forth in claim 7, further provided with a system console, the switch state to said ATM side bus or to frame side bus by said frame/cell switch unit being displayed on the system console.

Although Nishihara did not explicitly state the use of a display in his system, system consoles were well known in the art at the time of the applicant's invention in order to monitor a variety of pieces of a conversion system. Thus it would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to include a system console.

- <Claim 21>

An exchange as set forth in claim 12 or 13, wherein said first certain time t_1 is registered in units of B channels $\times N$ (N is 1, 2, 3, ...) or in units of channels by a command from the outside (Nishihara, column 5, lines 24-30).

- <Claim 22>

An exchange as set forth in claim 16, wherein said second certain time t_2 is registered in units of B channels $\times N$ (N is 1, 2, 3, ...) or in units of channels by a command from the outside (Nishihara, column 5, lines 24-30).

In addition, see discussion under claim 16 for the monitoring at a certain time.

- <Claim 23>

An exchange as set forth in claim 17, wherein said third certain time t_3 is registered in units of B channels $\times N$ (N is 1, 2, 3, ...) or in units of channels by a command from the outside (Nishihara, column 5, lines 24-30).

In addition, see discussion under claim 16 for the monitoring at a certain time.

- <Claim 24>

An exchange as set forth in claim 7, wherein whether an opposing exchange or an opposing terminal of another party of communication operates for frames or operates for cells as office data is registered in units of B channels x N (N is 1, 2, 3 ...) or in units of channels (Nishihara, column 5, lines 24-30).

- <Claim 25>

An exchange as set forth in claim 9, wherein the fact that the identification of whether the opposing exchange or opposing terminal of the other party of communication operates for frames or operates for cells should be automatically identified by said frame/cell detection unit is registered as the office data in units of B channels x N (N is 1, 2, 3, ...) or in units of channels (Nishihara, column 5, lines 24-30).

Since the combination of Nishihara and Lee discloses all of the above limitations, claims 1-25 are rejected.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to the applicant's disclosure.

- Chase et al. (U.S. Patent Number 6,081,524) disclosed a data transport service that includes a frame relay/ATM conversion unit and that uses a frame relay layer 2 data link connection identifier to select among various service types or feature sets.

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- McDysan (U.S. Patent Number 6,226,260) disclosed a method of communicating between frame relay/ATM gateways and ATM switches in a network where each frame relay/ATM gateway includes interworking function processing modules for converting user data between frame relay packets and ATM cells.

13. The applicant's amendment necessitated the new grounds of rejection presented in this office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). The applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor Lesniewski whose telephone number is 571-272-3987. The examiner can normally be reached on Monday through Thursday.

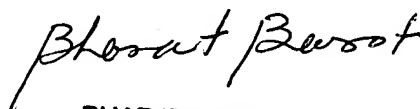
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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